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ABSTRACT

Howard Gardner and Jerome Bruner have given much to teachers who want to know how the minds of children grow. This story of a girl's construction of higher order, verbal linguistic intelligence is also theirs. Ideas they created have been cloned to fit a big city, public school classroom of African American 4th graders, each with a set of multiple intelligences including intelligences at promise, each struggling to solve the other mind problem; i.e., make meaning within the context of culture and with the tools of culture. Thus, this story of a fourth-grade author rests on the backs of Gardner's multiple intelligences theory and Bruner's cultural psychology. The central question in this teacher inquiry is how a girl constructs higher order verbal linguistic intelligence in a classroom that fosters multiple intelligences theory. (Contains 154 references.) (Author/RS)

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PS

" Education is no substitute for intelligence. That elusive quality is defined only in part by puzzle-solving ability. It is in the creation of new puzzles reflecting what your senses report that you round out the definition."

Frank Herbert
Chapterhouse Dune

Mindwaves

story of how a girl constructs higher order, verbal linguistic intelligence in a multiple intelligences classroom

By Jerry Fluellen

ED 423 510

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Abstract

Howard Gardner and Jerome Bruner have given much to teachers who want to know how the minds of children grow. My story of a girl's construction of higher order, verbal linguistic intelligence is also theirs. Ideas they created have been cloned to fit a big city, public school classroom of African American, 4th graders, each with a set of multiple intelligences including intelligences at promise, each struggling to solve the other mind problem; i.e. , make meaning within the context of culture and with the tools of culture. Thus, this story of Ala Smith--4th grade author--rests on the backs of Gardner's multiple intelligences theory and Bruner's cultural psychology.

The central question in this teacher inquiry is <u>how does a girl construct higher, order verbal linguistic intelligence in a classroom that fosters multiple intelligences theory?</u>

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No one writes alone. The minds and hearts of many people always inform the words on a single page. This paper is no exception. Jerome Bruner, Howard Gardner, and nine year old Ala Smith are major voices here.

Frank Farley's " Great Psychologists " advanced graduate seminar in Educational Psychology at Temple University was the source of development for an early draft. Helmut Bartel's advanced seminars in learning theory introduced me to Bruner, Gardner, Perkins and many other great minds in the intelligence field.

Susan Lytle's challenge to find a " curiosity question " at the first Spencer meeting in Penn's Graduate School of Education over two years ago shows up in the inquiry guiding this work. Spencer Foundation Fellows for teacher research in the Philadelphia Writing Project at University of Pennsylvania are here. Also, the Spencer Foundation Grant for teacher research funded this project.

Voices of faculty and symposiats at the 1997 and 1998 Harvard University, Project Zero summer institutes cluster behind the words in this work. The children in Ala's 4th grade class are here as well.

My daughter Fanta encouraged me throughout the two years of work on the manuscript and data analysis. My priest, H. Gregory Smith, gave me spiritual support.

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Finally, God's voice is both the silence beneath the words and the breath needed to form them.

This paper, thus, is dedicated to God and the multiple voices who are the mindwaves telling this story.

Jerry Fluellen
Philadelphia, PA
9/21/98

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We join spokes together in a wheel,
but it is the center hole
that makes the wagon move.

We shape clay into a pot,
but it is the emptiness inside
that holds whatever we want.

We hammer wood for a house,
but it is the inner space that makes it livable.

We work with being,
but non-being is what we use.
passage 11 from the *Tao Te Ching*

Among the most mindful of 20th century psychologists, Jerome Bruner has spent over four decades exploring deep issues in psychology and education, beginning in 1956 with his landmark work *The study of thinking*. Bruner's more recent *Acts of meaning* tells some of what he has learned.

" The study of the human mind is so difficult, so caught in the dilemma of being both the object and the agent of its own study, that it cannot limit its inquiries to ways of thinking that grew out of yesterday's physics. Rather, the task is so compellingly important that it deserves all the rich variety of insight that we can bring to the understanding of what man makes of his world, of his fellow beings, and of himself. That is the spirit in which we should proceed, " says Bruner when commenting on new directions for research in psychology. (Bruner, 1990)

This story of Ala Smith's growth in higher order, verbal linguistic intelligence is a mindwave in the direction of applying profound psychological ideas to educational settings and using teacher research as a means of reflecting on such application. It is a story of a nine year old author's attempt to understand other minds as well as an attempt to understand her mind. Hers is at once the story of Bruner's recent thinking about meaning making within a culture and with the tools of a culture. Hers is also a story of Howard Gardner's multiple intelligences theory applied to a 4th grade class in the Philadelphia public school system.

I want to begin with Bruner.

Jerome Bruner was born blind. At two years old doctors gave him sight. By the time he had finished his Ph.D. studies at Harvard University, he was on his way to making insights in a world dominated by behaviorism and World War II. By 1956 he had joined the little group of cognitivists at a benchmark, MIT symposium--the one Howard Gardner says gave birth to cognitive psychology. He spent the rest of his career shaping new directions in the field, moving from behaviorism to cognitivism, and, more recently, replacing his cognitive interest with cultural psychology.

Here in the 1990s, Bruner reflects on his career in two books: *The culture of education* and *Acts of meaning*. Their sum equals Bruner's exploration of the **other mind problem**--how a person comes to know another person's mind, a critical issue for the process of teaching and learning, a cornerstone for understanding Ala's growth in higher order, verbal linguistic intelligence in a multiple intelligences classroom.

In Bruner's view, two primary ways of thinking about how minds work have been the computational model and the culturalism model. (Bruner, 1990; 1996) On the one hand, the computational view of how minds work hypothesizes that mind could be conceived as a computational device concerned with information processing. Whereas, the culturalism model hypothesizes that mind is both constituted by and realized in the use of human culture. In contrast to information processing, this view says the mind is concerned with meaning making. Both models pose striking differences when applied to education. (Bruner, 1996)

A teacher in the computational model is more likely to take center stage and use instructional methods that encourages rote learning. A teacher in the culturalism model, though, puts the children on center stage. With a concern for meaning making instead of fact learning, this teacher (a drama director to extend the metaphor) is more likely to use methods that encourage deep understanding of subject matter.

Says Bruner " ...the computationist's approach to education seems to take three forms as noted."

" The first reformulates old theories of learning (or teaching, or whatever) in computable form in the hope that the reformulation will yield surplus power. The second analyzes rich protocols and applies the apparatus of computational theory to them to discern better what might be going on computationally. Then it tries to figure out how the process can be helped. This, in effect, is what Newell, Shaw, and Simon did in their work on the General Problem Solver, and what is currently being done in studies of how 'novices ' become 'experts.' Finally, there is the happy fortuity where a central computational idea, like ' redescription ' seems to map directly onto a central idea in cognitive theory, like ' metacognition.'" (Bruner, 1996)

Bruner's description of the computationist's perspective on how minds work seems to dovetail with Frijof Capra's story of how the mechanistic world view dominated so much of science for 300 years or so. (Capra, 1982; 1991; 1996)

In contrast, the culturalist's view closely aligns with Capra's description of the ecological paradigm. For Capra, new views in science tend to describe life in terms of networks. Like a bird nesting in a tree, mind, then, would be a network nesting in a network of other minds. This elucidates Bruner's view of the culturalist model. (Capra, 1991; 1996)

According to Bruner, " the culturalist approaches education in a very different way. Culturalism takes as its first premise that education is not an island, but part of the continent of culture." (Bruner, 1996)

Education is a network nesting in a network.

Bruner goes on to say the culturalist's " next question might be why education is situated in the culture as it is, and how this placement reflects the distribution of power, status, and other benefits. Inevitably, and virtually from the start, culturalism also asks about the enabling resources made available to people to cope, and what portion of those resources is made available through 'education,' institutionally conceived." (Bruner,1996)

Finally, Bruner says " And it will constantly be concerned with constraints imposed on the process of education--external ones like the organization of schools and classrooms or the recruitment of teachers, and internal ones like the natural or imposed distribution of native endowment, for native endowment may be as much affected by the accessibility of symbolic systems as by the distribution of genes." (Bruner, 1996)

II

It seems a computationist would not be concerned with the multiple networks nesting in culture and their roles in meaning making. Also, questions at such levels of complexity defy most research designs and, therefore, are not asked. But a culturalist might be concerned with issues in the computationist approach, particularly how mind makes meaning within the context of one or more cultural settings. Such a view is also at home with Frijof Capra's notion of complexity in living systems. (Capra, 1996)

More importantly, the culturalist approach offers a series of ideas about how minds work. These provide a backdrop for examining the other mind problem more deeply.

Bruner offers nine tenets to guide a culturalist approach to education:

- perspectival tenet
- constraints tenet
- constructivism tenet
- interactional tenet
- externalization tenet
- instrumentalism tenet
- institutional tenet
- identity and self esteem tenet
- narrative tenet

The first three tenets set the stage for examining Howard Gardner's frames of mind as a special case of the other mind problem--one of many powerful ways of teaching for understanding in the Harvard Project Zero framework.

perspectival tenet

" The meaning of any fact, proposition, or encounter is relative to the perspective or frame of reference in terms of which it is construed," says Bruner in discussing the perspectival tenet. (Bruner, 1996)

A culturalist teacher would help children to examine the point of view behind an expressed idea under study. For example, the opening lesson of Houghton Mifflin's fourth grade Social Studies text paints a rather sanitized view of the population in the United States. It says our nation's people are comprised of various ethnic groups who hold multiple beliefs. Also, it says the people share a common government that serves all the ethnic groups.

Yet people living in the barrios, reservations, ghettos and sidewalks of the United States might not feel so well served. And people whose beliefs clash with other ethnic groups might not feel the same sense of harmony that the authors of this text present. At it simplest level, many ethnic groups in our nation clash, dialectically--Friere's oppressed and oppressor. Maya Angelou describes this situation in her poem " The caged bird. "

A free bird leaps
on the back of the wind
and floats downstream
till the current ends
and dips his wing
in the orange sun rays
and dares to claim the sky.

But a bird that stalks
down his narrow cage
can seldom see through
his bars of rage
his wings are clipped and
his feet are tied
so he opens his throat to sing.

The caged bird sings
with a fearful trill
of things unknown
but longed for still
and his tune is heard
on the distant hill
for the caged bird
sings of freedom.

Bruner continues, " To understand well what something ' means ' requires some awareness of the alternative meanings that can be attached to the matter under scrutiny whether one agrees with them or not." This calls to mind Richard Paul's notion of strong sense critical thinking.

Specifically, Paul has argued that learners best demonstrate their understanding of subject matter when they can demonstrate a capacity to use opposing views as means of ferreting out strengths and weaknesses in their own thinking. These are the strong sense critical thinkers in Paul's view: people who can use, skillfully, the basic elements of thought (purpose, concept, issue, point of view, assumption, inference, implication, consequence and conclusion) as a means of understanding a subject deeply. (Paul, 1990; Fluellen, 1992, 1994)

Paul describes the strong sense critical thinker in the following.

One who is predominantly characterized by the following traits: 1) an ability to question deeply one's own framework of thought; 2) an ability to reconstruct sympathetically and imaginatively the strongest versions of points of view and frameworks of thought opposed to one's own; and 3) an ability to reason dialectically (multilogically) in such a way as to determine when one's own point of view is at its weakest and when an opposing point of view is at its strongest. Strong sense critical thinkers are not routinely blinded by their own points of view. They know they have points of view and therefore recognize on what framework of assumptions and ideas their own thinking is based. They realize the necessity of putting their own assumptions and ideas to the test of the strongest objections that can be leveled against them. Teaching for critical thinking in the strong sense is teaching so that students explicate, understand, and critique their own deepest prejudices, biases, and misconceptions, thereby discovering and contesting their own egocentric and sociocentric tendencies. Only if we contest our inevitable egocentric and sociocentric habits of thought can we hope to think in a genuinely rational fashion. Only dialogical thinking about basic issues that genuinely matter to the individual provides the kind of practice and skill essential to strong sense critical thinking. (Paul, 1990)

" I try to prove myself wrong." That is what University of Pennsylvania Professor Rebecca Freeman rather playfully said in one of her data analysis workshops for Spencer Foundation Fellows in the Philadelphia Writing Project. As a matter of mindful practice, she challenges her assumptions about the meaning of data.

Similarly, the critical thinker deliberately seeks opposing points of view to find strengths and weaknesses in her own thinking. That includes understanding. Fourth graders might share the history book author's clean view of the United States, but to understand that point of view well is to know the views of ethnic groups in defiance, to know why the free bird can think of fat worms waiting on a dawn bright lawn and why the caged bird, wings clipped and feet bound, can still sing of freedom.

Children need to empathize with both points of view, that of the oppressor and that of the oppressed if they are to practice strong sense critical thinking. Also, they must challenge their own assumptions.

Then Bruner says " interpretations of meaning reflect not only the idiosyncratic histories of individuals, but also the culture's canonical ways of constructing reality." (Bruner, 1990; 1996) Meaning, it would seem, derives from the fit between both the learner's private construction and the everyday way culture encourages learners to construct what is real.

As the tenet relates to the other mind problem, it suggests thinking about the point of view behind a given idea as well as the match between private construction of meaning and canonical ways of meaning making. To understand another mind is to understand the other point of view as well as one's own point of view. This includes comparing one's private meaning with the canonical ways of meaning construction within a given culture.

constraints tenet

Secondly, Bruner's constraints tenet says the forms of meaning making accessible to human beings in any culture are constrained in two crucial ways: the nature of human mental functioning and the nature of language. (Bruner, 1996) But the limits of mental functioning can be broken. Humans have " a capacity to recognize ways beyond that endowment," asserts Bruner.

" If pedagogy is to empower human beings to go beyond their native predispositions, it must transmit the ' toolkit ' the culture has developed for doing so."

One fourth grade class at Joseph Pennell (1996-1997), for example, used David Perkins' knowledge as design method of critical thinking to strengthen the Houghton Mifflin literature based reading program. Children in the *Dinosauring* 4th grade book were reading the " Shrinking of Treehorn," a fantasy story in the first theme of the text. The note taking journal page for reflecting on the story offers no suggested ways for children to make sense of the text. They are left to construct meaning on their own. But Perkins' method gives them a way of asking and answering a wide range of questions based on his view that " knowledge is a purpose adapted to a structure," and, therefore, has four generic features: they are purpose, structure, model cases and arguments.

Using this tool from a toolkit of prosthetic devices available in the culture, children can expand the limit of mental function and take on questions such as the following:

1. Why did the author write " The shrinking of Treehorn?
2. What are the the story elements (characters, setting, and key events at this level)?
3. How does the story differ from the other two fantasy stories you read in this theme?
4. Does this story make women look good? Why or why not? Or do children in Treehorn's world have power? Or when Treehorn turned green all over would his friends still accept him?

Knowledge as design enables them to take on a concept such as photosynthesis and generate their own I wonder questions:

·What does photosynthesis do?
·What makes photosynthesis work?
·Do the plants in our class garden use photosynthesis?
·Are there plants that don't use photosynthesis?
·Who made photosynthesis?
·Why do plants need photosynthesis?
·Why do plants need people and people need plants?

It enables them to make knowledge as design story maps of teacher made questions about the history of farming article in their science text:

·Why did we read the " history of farming?"
·What problems have farmers been facing over the last 10,000 years?
·How has our class garden succeeded and failed to solve some of these historical problems?
·What problems might farmers face in the 21st century, the next 100 years?
·What new questions might be asked?

Knowledge as design gives children a prosthetic device for constructing their own questions as well as for examining any human object or idea from at least four points of view, namely, purpose, structure, model case, and argument (explanatory, evaluative, deep explanatory). It is an illustration of reflective intelligence as seen from the perspective of David Perkins' new theory of learnable intelligence. (Perkins 1997) And it is metacognition, one feature of higher order, intrapersonal intelligence. (Gardner 1983; Lazear, 1991)

Bruner goes on to say the " pedagogical implications of the foregoing are strikingly obvious. Since the limits of our inherent mental predispositions can be transcended by having recourse to more powerful symbolic systems for doing so. And if the limits imposed by the language we use are expanded by increasing our ' linguistic awareness,' then another function of pedagogy is to cultivate such awareness. We may not succeed in transcending all the limits imposed in either case, but we can surely accept the more modest goal of improving thereby the human capacity for constructing meanings and constructing realities." (Bruner, 1996)

Part of helping children to deal with the other mind problem requires giving them tools (learning strategies) from culture's toolkit of prosthetic devices, tools such as knowledge as design.

But an even a more powerful tool for understanding other minds as well as our own minds is Gardner's multiple intelligences (MI) theory. MI theory itself is one such prosthetic device for helping children to transcend some of the limits to learning. Because it provides activities and assessments in several different intelligences, it might expand each child's capacity to understand other minds. Thus MI theory might soften the constraints of mental functioning and language. And, finally, beyond the other mind problem, MI theory certainly seeks to ferret out the ways children are at promise.

constructivism tenet

Finally, Bruner extends this view of helping children to deal with the other mind problem in his constructivism tenet.

" Reality construction is the product of meaning making shaped by traditions and by a culture's toolkit of ways of thought. In this sense, education must be conceived as aiding young humans in learning to use the toolkits of meaning making and reality construction, to better adapt to the world in which they find themselves and to help in the process of changing it as required. In this sense, it can even be conceived as akin to helping people become better architects and better builders." (Bruner, 1996)

Using Howard Gardner's multiple intelligences theory as a framework for helping children to understand their own frames of mind as well as the minds of others is, perhaps, deep meaning making.

For example, in a 1996-1997 4th grade class at Pennell elementary, a public school in Philadelphia, the teacher and children spoke the language of multiple intelligences since the first day of school. After two months of sharing observations and inferences about each other's different intelligences, it was not unusual for a child to see herself as math/science smart (logical mathematical intelligence) or sports smart (bodily kinesthetic intelligence).

Nor was it extraordinary for the teacher to smuggle in fundamental algebraic ideas such as positive and negative integers or the concept of zero during a Tai Chi warm up exercise. The yen and yang of many Tai Chi movements, for example, allows children to experience positive and negative integers with their bodies--what Tod Spedding of Harvard Project Zero's MI/ND 1997 faculty calls **becoming the concept.** Spedding, 1997)

Voice and articulation warm up exercises during an actor's rehearsal for the multicultural play performance project showed up in voice overs for passages from a science book as children imaged they were narrating text for a television science documentary on Discovery channel. That became commonplace.

The children found it to be quite ordinary to listen and code 14 selections of music from ethnic groups around the world as a means of understanding similarities and differences among ethnic groups in our nation. They had been studying the ethnic group concept in their Social Studies text.

They boiled down a traditional story and a fairy tale (" The boy of the three year nap " and Yeh Shen, respectively) to six key events that retold the stories. Then they illustrated each event in a six frame television story board. Finally, they worked in teams to perform the story boards, thus, using most of Gardner's original set of intelligences in one large project as they struggled to understand what characterizes fairy tales. Later in the year, they designed and performed a story board for the *Lion and the Stoat* folk tale--again using all eight intelligences as tools for understanding that genre, though using the whole set of intelligences is not a requirement for understanding a given concept.

Nor is it desirable to mechanically plan activities that use all the intelligences. The activities must make sense in terms of what children need in order to understand--to transfer knowledge to a new situation. (Gardner 1997b) MI activities, when used with integrity in diverse settings, are put in service of teaching for understanding important ideas. (Harvard Project Zero, 1997)

And instead of doing the usual elementary school poems about sugar and springtime, pumpkins and snowfalls (all of which do reach the children where they are and, thus, fill an important need) these 4th graders have been learning how to recite dramatically Maya Angelou's " Caged Bird," Niki Giovani's " Poem for Carol, " Amy Lowell's " Until I saw the sea," Lillian Moore's " Sea shell, "Myra Cohn Livingston's " Prayer for Earth " and " Keep on singing," Robert Frost's " The road not taken," Alfred Noyes' " Highwayman "and Langston Hughes' " Earth Song," " Mother to Son, " " I too," and " The Negro speaks of rivers."

Because their sights have been raised, they don't find it unusual at all to recite otherwise adult poems at a professional-like level. Nor do they find it difficult to use Edward de Bono's six hat thinking method to see a single one of these poems from six different perspectives as they struggle to understand the meaning of the poem and translate that understanding into dramatic performance.

Finally, this group of nine year olds completed a nearly year long thematic unit as well as a shorter unit in the Harcourt Brace *Science anytime* program. This is a text based on Gardner's theory of multiple intelligences. Key to the program is the involvement of children in a model for constructing knowledge:

·I wonder.
·I plan.
·I investigate.
·I reflect.
·I share.
·I act.

Soon these children will believe it is unremarkable for them to take hold of a life long model for inquiry such as the above. Also, this model for making scientific knowledge gives chances to combine two or more intelligences in service of understanding. Soon these children will intuit James Redfield's celestine charge that each of us evolve to a higher self as well as help others to evolve. (Redfield,1993; 1996) Soon these children will know how to understand their own minds and the minds of others.

It is in the calabash of meaning making that Bruner's recent thinking holds the most significant implications for teachers thirsting for sound psychology to educate real world children. Here Bruner calls into question the field of psychology itself and proposes a new direction, a cultural psychology grounded in human meaning making, thus giving the other mind problem a richer context.

Says Bruner " inside psychology there is a worried restlessness about the state of our discipline, and the beginning of a new search for means of reformulating it. In spite of the prevailing ethos of ' neat little studies,' and of what Gordon Allport once called methodolatry, the great psychological questions are being raised once again--questions about the nature of mind and its processes, questions about how we construct our meanings and our realities, questions about the shaping of mind by history and culture."

He goes on to say the great questions, " often pursued more vigorously outside than inside ' official psychology,' are being reformulated with a subtlety and rigor that yield rich and generative answers."

" We know far better now how to approach the Great Comparisons whose resolutions have always challenged psychology: the comparison of man and his evolutionary forebears, man as immature child and man at full maturity, man in full health and man afflicted by mental illness or alienation, ' human nature ' as expressed in different cultures, and indeed even the comparison between man in flesh and blood with the machines constructed to simulate him. Each and every one of these inquiries has prospered when we have been willing to ask questions about such taboo topics as mind, intentional states, meaning, reality construction, mental rules, cultural forms and the like."

Finally, bringing Bruner's thinking to the point I wish to make in teacher research, he says Ocam's razor, warning us not to multiply our conceptual entities more than ' necessary, ' was surely not intended to ban mind from the mental sciences. Nor were John Stuart Mill's principles of induction meant to quell all forms of intellectual curiosity save those which could be slaked by the controlled experiment."

Ala's story could not be told in a controlled experiment. And the inquiry guiding this exploration seems more in line with the family of questions clustered around Bruner's notion of comparing immature man and mature man--or as in the case of this inquiry, a nine year old child with an eye on mature manifestations of higher order, verbal linguistic intelligence.

Ala's story falls far short of comparing her nine year old authorship to the Nobel Prize winning Toni Morrison's command of higher order, verbal linguistic intelligence. But it is a mindwave in that direction. Ala has already begun to show signs of " dancing with minds," Toni Morrison's metaphor for the old fashion literacy practice of reading for long periods just for the pleasure of it and writing for audiences just for the urgency of continuing the dance. (Morrison, 1997)

***

The master has no mind of her own.
She works with the mind of the people.

She is good to people who are good.
She is also good to people who aren't good.
This is true goodness.

She trusts people who aren't trustworthy.
She also trusts people who aren't trustworthy.
This is true trust.

The Master's mind is like space.
People don't understand her.
They look to her and wait.
She treats them like her own children.
passage 49 from the *Tao Te Ching*

The year was 1983.

A Nation at Risk had delivered a slap in the face of the national school system. Indeed, schooling in the United States had failed. Too many children had low levels of what Bruner called logical scientific and narrative thinking. (Bruner, 1977; 1996) Too many children did not master the fundamental ideas of subject matter such as English Language Arts, Mathematics, Science, History, Music, Theater, Art and Dance. Too many children were tracked, like Forest Gump, into a singular view of human potential.

That same year Howard Gardner gently released his *Frames of mind: The theory of multiple intelligences.* A book not intended as a response to *A nation at risk, Frames of mind* introduced the idea that intelligence might be more than an IQ score (mental age divided by chronological age multiplied by ten). Howard not only debunked long held widespread beliefs about intelligence (ones elucidated in Bernard Watson's extended essay on intelligence tests), but his theory held huge implications for teaching and learning. It answered the call from *A nation at risk.*

Much of the folk psychology of the 20th century had focused on the IQ as a fixed indicator of individual capacity reported in a single score--mental age divided by chronological age times ten. Even as recently as 12-3-97, at a meeting between Germaine Ingram, Superintendent Hornbeck's Chief of Staff, and representative teachers in the Germantown Cluster of the Philadelphia Public Schools, one teacher exclaimed that some children could never become more intelligent no matter what the interventions.

This belief in unchanging IQ began with Binet in France. He had been concerned with sorting out children who needed special help in the Parisian school system. Although he did not himself ascribe to the belief that intelligence was a single, fixed factor of native endowment, his invention of the IQ test spread around the world in a manner that defined intelligence operationally as a score on a test.

Amid beliefs in Nordic superiority, as Bernard Watson points out, it became public knowledge that a person's IQ was a score that would remain stable during a life span. It became common public school practice in the United States to track children according to bell curve rankings on IQ tests and analogous measures of human potential. (Perkins 1997, 1997; Watson, 1996; Gardner, 1983)

Seen in this light, Binet's IQ test was a trigger effect, an invention that generated widespread changes in a population. But as James Burke points out in *Connections* inventions such as the plough, printing press, telephone, television and computer greatly accelerated human evolution on the one hand, while greatly creating new dependencies on the other. (Burke, 1995)

Binet's invention of an idea changed the way people viewed education in many parts of world beyond the shores of France. It provided a steady indicator of intelligence while creating a dependency on the operational definition of IQ. Decades of the educational practice of tracking children and workers followed. Decades of finding people at risk and freezing them there for life followed as well. Though not Binet's intention, human potential had become a numerical score on a test and one that supported notions of racial and ethnic superiority according to Watson's analysis. (Watson, 1996)

Likewise, Gardner's invention of multiple intelligences represents a new idea that is also a " trigger effect," generating change in educational practice beyond the shores of the United States. It redefines human potential into a set of proclivities in human beings across cultures. Yet it is likely to create new dependencies as well as both bad and good examples of its applications in real educational settings. Hopefully, though, it will also lead educators to explore the ways people are **at promise** across race, gender, class and ethnic origins.

II

Folk psychology

From Bruner's landmark work *Acts of meaning,* another major idea emerges: folk psychology made positive. Says Bruner " All cultures have as one of their most powerful constitutive instruments a folk psychology, a set of more or less connected, more or less normative descriptions about how human beings ' tick,' what our own and other minds are like, what are possible modes of life, how one commits oneself to them..."

The folk psychology of the 21st century (the everyday beliefs ordinary people hold) is likely to think about multiple intelligences as an indicator of individual capacity reported in oeuvres--works representing a range of media or combination of media. At that time public knowledge will say that a person's spectrum of intelligences can be improved over a life time as a result of teaching, coaching, and experience. (Gardner, 1983; 1993; Bruner, 1996)

The very definition of intelligence will have changed from the more operational but less liberating score on an IQ test to the less operational but more liberating " **intelligence entails the ability to solve problems or fashion intellectual products that are of consequence in a particular cultural setting or community.**" (Gardner, 1993)

Gardner's theory grew, in part, from several observations he made working with brain damaged patients. He wondered why certain capacities remained intact while others were lost because of brain injury. As his studies of brain damaged patients converged with his interest in the historical development of intelligence in the psychology field, his literature review of biological evidence for intelligence, and his research on what counts for intelligence, he began to believe that at least seven intelligences characterized human beings across cultures. (Gardner, 1983)

They are as follows:

- verbal linguistic intelligence
- logical mathematical intelligence
- musical intelligence
- visual spatial intelligence
- bodily kinesthetic intelligence
- intrapersonal intelligence
- interpersonal intelligence (Gardner 1983; 1993; 1994)

Each of these frames of mind has a set of identifiable core abilities.

Furthermore, in creating the construct multiple intelligences, Gardner intended to create a better classification of human intellect.

He said "...there is a need for a better classification of human intellectual competencies than we have now; because there is much recent evidence emerging from scientific research, cross-cultural observations, and educational study which stands in need of review and organization; and perhaps above all, because it seems within our grasp to come up with a list of intellectual strengths which will prove useful for a wide range of researchers and practitioners and will enable them (and us) to communicate more effectively about this curiously seductive entity called the intellect."(Gardner, 1983)

" In other words, the synthesis that we seek can never be all things for all people, but holds promise of providing some things for many interested parties," says Gardner. (Gardner, 1983)

In addition, he believed that prerequisites for intelligence and eight criteria for what counts as an intelligence might describe the frames of mind in such a way that encourages rethinking human potential.

" To my mind, a human intellectual competence must entail a set of skills of problem solving--enabling the individual to *resolve genuine problems or difficulties* that he encounters and, when appropriate, to create an effective product--and must also entail the potential for *finding or creating problems*---thereby laying the groundwork for the acquisition of new knowledge. These prerequisites represent my effort to focus on those intellectual strengths that prove of some importance within a cultural context." (Gardner, 1983

He goes on to describe eight criteria that were used to select the original seven frames of mind that comprise his multiple intelligences theory.

These rigorous criteria helped him recently to decide among several new candidates for intelligences. In one of his three keynote addresses at Harvard Project Zero's MI/ND 1997 symposium at Milton Academy, Gardner said that naturalistic can become an eighth intelligence but existential could only be a half. Thus, he, humorously, told the symposiats at MI/ND 1997, " now there are 8 and a half intelligences." (Gardner, 1997b)

III

Folk pedagogy

In 21st century folk pedagogy (what Bruner calls the beliefs of ordinary teachers), teaching and learning may be characterized by activities that frequently represent one or more of the intelligences. (Bruner, 1996; Gardner, 1983)) This is already true in school efforts such as the Arts Propel Project in Pittsburgh, Keys Middle School in Indiana, the New City School in St. Louis, and Project Spectrum in Cambridge, and soon the Forest Elementary School in Philadelphia--settings in which Gardner's theory is, in effect, a theory of teaching for understanding. (Gardner, 1993)

Another reframing of intelligence in the everyday language of " folk pedagogy " may include the idea of " distributed intelligence." This will come to mean that intelligence resides in culture as well as individuals. Distributed intelligence is in the Internet, computer data bases, CD ROMS, books, films, compact disks, microfiche, television programs, art exhibits, magazines, newspapers and, most importantly, other people. (Bruner, 1996, Gardner 1994)

A 21st century, well rounded person will not only continue to develop multiple intelligences throughout her lifespan, will not only use several intelligences in combination to solve problems or fashion intellectual products that meet a standard of excellence, will not only use both experiential and reflective intelligence to raise the IQ ascribed by native endowment, she will use "distributed intelligence " effectively.

Gardner's multiple intelligences theory has already begun to influence late 20th century folk pedagogy. Besides numerous anecdotal accounts of teachers combining two or more intelligences in methods or assessments, there has emerged a data base of literature describing uses of multiple intelligences in school districts, schools and classrooms from K-12.

This literature seems to fall into three rough categories:

1. one describing multiple intelligences theory itself and its implications for educational practice particularly as elucidated in doctoral dissertations and the primary documents of Gardner himself;
2. another offering practical applications of the theory in a range of educational settings, from kindergarten to college; and, finally,

3. a third category of literature reporting on efforts to understand multiple intelligences theory; these appear in the form of conferences, workshops, courses, or even symposiums such as Harvard Project Zero's MI/ND (1996 and 1997); these appear on the Internet including the newly minted Learn PZ available only to Harvard Project Zero subscribers and newsletters such as the Intelligences Connection; these efforts make a distributed intelligence about multiple intelligences, in particular, and teaching for understanding, in general.

As a whole, the first category of literature seems to emphasize explanation and description of the theory; it explains how MI theory connects subject matter, methods, teaching, learning, assessing, and, by implication, standards. The second seems to provide how-to models for putting MI theory to work in specific educational settings. This includes Harcourt Brace's K-5 science program and the New City School's book on applying MI theory across a whole school. The third, a more elusive literature, seems to be a form of distributed intelligence about multiple intelligences. It includes Harvard Project Zero's MI/ND symposiums, which reach an international group of educators who spend a few July days together for intense exchanges with Gardner himself and other major players in the teaching for understanding field such as David Perkins, Lois Hetland, and Veronica Boix-Mansilla.

Overall, this literature rests on works by or co-authored by Gardner himself and extensions of his theory in explicit or implicit models including his ground breaking books in creativity and leadership, namely *Creating minds, Leading minds, and Extraordinary minds.* It includes how-to books such as Fogarty's. The how-to genre suggests specific guidelines for setting up multiple intelligences classrooms. These how-to books include Lazear's Phi Delta Kappa seminar manuals for developing multiple intelligences in people of all ages and Harcourt Brace's teacher's edition for *Science anytime.*

Finally, the literature includes ideas about the development of multiple intelligences efforts reported in the Internet, newsletters and Harvard Project Zero's ongoing listing of people offering MI theory workshops and its ongoing development of a network including MI workshop facilitators and schools and school districts with the MI theory focus or a teaching for understanding focus with MI theory as a featured tool.

More recently, Harvard Project Zero's " Learn PZ " is making new directions in teaching for understanding, including multiple intelligence theory, available to subscribers. And recently, a project from Harvard Project Zero resulted in a major text book on intelligence that Gardner co-authored with Mindy L. Kornhaber ad Warren K. Wake.

Yet, despite the growing anecdotes about MI theory and its increasing applications and clear new directions for the intelligence field, its research base remains small. In thirteen years only a handful of dissertations and theses have been completed. And although Harvard Project Zero has organized studies of MI theory applications from K-12, little of this research has reached the public. Most of it remains known only by the cogni scienti. Even the most extensive study of MI to date (Mindy Kornhaber's SUMIT--Schools using multiple intelligences theory) remains known primarily to those close to the field.

Except for Howard Gardner's less well known works *Creating minds* and *Extraordinary minds,* or Jerry Fluellen's informal (teacher research) description of one child's construction of higher order, logical mathematical intelligence (Gardner, 1993 and 1997; Fluellen, 1996), no study to date, for example, has examined how a child constructs the higher order ends of a given intelligence. The next 100 years of practitioner and university research in education may change this shortcoming radically.

Meanwhile, though the MI field is new, each of Gardner's original seven intelligences draws support from numerous studies. For example, logical mathematical intelligence stands on the shoulders of a research giant, Jean Piaget. The literature is extensive. Likewise, the data base for each of the other intelligences, except existential, is significant. All together, these studies enable readers to at least understand what each intelligence features in terms of core abilities as well as to sense its supporting research base.

Research support for the seven intelligences also provides a foundation for adding new intelligences to the set, ones such as naturalistic intelligence and, at some point, existential intelligence. (Harvard Project Zero, 1997; Gardner, 1997b)

Though Gardner's MI theory has become widespread and may become one of psychology's most important contributions to education, it has not been without its critics.

Perhaps the most insightful of Gardner's critics has been David Perkins. Gardner and Perkins were both graduate assistants in Harvard Project Zero's research center over 30 years ago. They worked for Nelson Goodman who founded the center with the intent to explore how the arts involve cognitive processes.

The two assistants succeeded Goodman as co-directors of the center and have since made significant contributions to cognitive psychology. Gardner's MI theory has become a renown framework for understanding human potential and designing instruction to augment that potential. Perkins' learnable intelligence (itself a multiple intelligences theory) is brand new and may take years to become part of the fabric of educational practice.

It is in Perkins' recent book *Outsmarting IQ: The emerging science of learnable intelligence* that he reviews research on intelligence and critiques his partner's theory.

Perkins begins his review of research about multiple intelligence with a look at a well established idea on the psychometric side: the " g " factor.

" Psychometrics is the science of psychological measurement," he says to open the discussion.

" The classic concepts of IQ and g both fall into its camp. Both put numbers to the phenomenon of some people consistently behaving more intelligently than others. Indeed, the prominence of IQ and g in theorizing about the mind and in practical matters such as school tracking and employment decisions had fed psychometrics as a discipline."

Then Perkins uncovers a counterpoint to the established view.

" Nonetheless, much of the criticism comes from within the camp of the emperor--directly from psychometrician concerned with giving the best account possible of the nature of the human intellect. Many of the challenges have dealt with a key claim on Goddard's list and a key characteristic of Spearman's notion of mental energy: the idea that intelligence is unitary, one essence, one kind of ability. Instead, intelligence might be viewed as a composite of different contributing abilities."

Beginning with Godfrey Thomson, a British psychologist working in 1916, Perkins explores several model cases of research in which it is suggested that intelligence be described as multiple.

For example, citing Raymond Cantell and John L. Horn's research, intelligence may be described in terms of fluid or crystallized.

" Fluid intelligence gauges how adaptable people are to novel tasks, where experience provides little foundation and general reasoning abilities dominate."

" In contrast," says Perkins, " crystallized intelligence reflects people's accumulated knowledge and experience. Rather than novel tasks, psychometrician use vocabulary tests, general knowledge quizzes, and the like to measure crystallizing intelligence."

Citing Horn's conclusion, Perkins says that " crystallized and fluid intelligence together give a somewhat sharper analysis of intellectual functioning than *g* as a single factor.

Horn's recent work offers an even broader view. He reviewed a number of dimensions of intelligence--Well-Replicated Common Factors in intellectual performance or WERCOF factors. Horn claims there are 45 " statistically derived components of intellectual ability falling under several broad categories."

Then Perkins turns his attention to factor analysis to create metaphors for the rest of his review.

" How is it that Spearman and others can extract a general *g* factor from tests while Horn, Cantell, and yet others come up with a multiplicity of factors?" is a key question Perkins seeks to examine.

He says " to a degree, this is actually a matter of choice."

Factor analysis, on the one hand allows extracting a general *g* from a diversity of tasks, but it also allows dividing people's performances into subfactors as well. Perkins calls this choice a decision to be a " lumper or splitter."

For the lumper's, Perkins says " virtually all performances on intellectually challenging tasks correlated: People who do well on one such task tend to do well on others..."

" The overlap among the multiple factors amounts to *g*. While *g* may not reflect any single mechanism--remember Thomson's argument that it could simply echo the overlapping of resources required by different complex tasks--*g*--is a statistical and practical reality that cannot be dismissed."

Yet Perkins does not dismiss the splitters either.

" The reality of intelligence seems to involve both one overarching factor and a number of only partly distinguishable components."

Thus enters Gardner.

Says Perkins, " A very different and quite recent perspective on multiple intelligences comes from my colleague of many years, Howard Gardner."

" While most of the multiple intelligence theories discussed here come from psychometrician, Gardner represents another camp. Indeed, Gardner's...MI theory...is more a reaction to than a variation of psychometric theories."

In describing the gist of how his partner founded MI theory, Perkins says " Gardner argues for his seven intelligences not from statistical analysis but rather from studies of brain damage, where certain abilities are commonly lost in company with others; from studies of prodigies and idiot savants, where people display amazing performance in a particular area; and from a general consideration of the kinds of activities that prove central in a complex society."

Furthermore, " Gardner criticizes the psychometric tradition--even in its more eclectic form--for ignoring facets of the human intellect such as music and kinesthetic abilities."

Perkins adds the following: " Nonetheless, Gardner's view shows some kinship to the spawn of psychometry. First of all, Gardner, in company with many psychometrician, believes that the intelligences he proposes reflect in part underlying neurological factors. Second, several of Gardner's intelligences are not so different from those in Guilford's content dimension of intelligence. In particular, Guildford's figural (pictorial and spatial matters) matches Gardner's spatial intelligence, his symbolic (numbers and notations) Gardner's logical-mathematical intelligence; and his semantic facet (words and ideas) Gardner's linguistic intelligence."

But this is not the real bone Perkins has to pick with Gardner's MI theory. While acknowledging the dual foundation upon which MI theory stands--neurological and social--and while agreeing that Gardner makes room for learnable intelligence in his attention to how experience can improve any one of the multiple intelligences set, Perkins does not believe his partner gives the proper weight to the role of reflection in increasing intelligent behavior.

" MI theory recognizes both the neural and the experiential contributions to intelligence behavior that are so important in realm theory," according to Perkins.

Gardner's theory has a double foundation: " on the one hand in studies of brain function and brain damage that represent the neurological contribution, and on the other in consideration of professional development in socially important domains, which honors the contemporary research on expertise and context-specific knowledge."

" In building his perspective, Gardner provides an eloquent and effective reminder that we should not identify intelligent behavior with testlike or doggedly linguistic or mathematical tasks. Human history and social realities cry out for a much broader view."

Continuing, Perkins says " Gardner certainly thinks that intelligent behavior in particular domains like music or mathematics can be cultivated by effort and education. However, he is skeptical of the notion of general cross domain learnable intelligence, arguing emphatically for the context-bound character of intelligent behavior. In his concept of intrapersonal intelligence--one's capacity for self awareness--Gardner makes modest room for something of the sort. But his hopes for its power and reach are not high."

Finally, Perkins says the following: " in keeping with this, my main reservation about MI theory is its disregard for reflective intelligence. I have tried to argue throughout...that people can come to behave more intelligently in a general way. We can learn our way around important realms of thinking like those charted in the previous chapters (of Perkins' book).

" MI theory promises nothing like this."

Perkins' point is well taken. It is only as recent as last summer in the MI/ND 1997 symposium that Gardner not only recognizes the power of reflection in and across the intelligences but sees MI theory as a whole in service of the broader whole--Project Zero's teaching for understanding framework.(Fluellen, 1998)

Folk pedagogy of the 21st century may hold that reflective intelligence is the real *g* factor serving as an emergent property within and across the multiple and distributed intelligences.

***

Not-knowing is true knowledge.
Presuming to know is a disease.
First realize that you are sick;
then you can move toward health.

The Master is her own physician.
She has healed herself of all knowing.
Thus she is truly whole.
passage 71 from the *Tao Te Ching*

" What business are you in?"

Mary Follet asked corporate bosses that question decades before strategic planning staffs became popular. When they gave mindful answers she said " What business should you be in?"

I used to be in the business of teaching critical thinking. But even a model such as the National Council for Excellence in Critical Thinking (NCECT) framework did not describe human potential in terms of intelligent behavior. If I wanted my children to grow intelligence and practice intelligent behavior, teaching critical thinking would not be enough. That left me wondering about what business I should be in.

Then Howard Gardner's multiple intelligences theory caught my eye when I participated in the 6th International Conference for Thinking at MIT in 1994 and completed David Lazear's training in teaching multiple intelligences. Critical thinking was embedded in Gardner's theory, but he described human potential more to my satisfaction than Richard Paul's discussions of the NCECT framework. And MI theory, while not ignoring gender, seeks to expand our view of human potential and, therefore, is transgender.

One of the most attractive ideas in Gardner's theory was that boys and girls could improve each of the eight intelligences over a lifetime through teaching, coaching and experience. To me this powerful idea had implications for classroom practice, and I wanted to know how a child grew an intelligence. That meant creating a multiple intelligences classroom on the one hand and extensive reading on the other.

As of September 1997, no topic appearing in four data bases explored how a child constructed higher order, verbal linguistic intelligence (when multiple intelligences and Gardner, Howard were search terms, ≥1982).

The closest work to this topic was Gardner's description of T.S Elliot in *Frames of mind* and *Creating minds* . Also, his description of Virginia Woolf in *Extraordinary minds* yielded insights about the development of higher order, verbal linguistic intelligence, though the context was a discussion of introspection as a type of extraordinary mind.

Thus, born of a desire to reflect on growing intelligence in my 4th grade class and a feeling that the explorations might add to what was known as well as increase what was unknown, I made my Spencer Foundation teacher research project center on the story of Ala Smith's growth in a classroom fostering Gardner's multiple intelligences theory.

However, Spencer Foundation's grant for teacher research funded a gender centered project--the one supporting my research. Gender, though interesting, became less of a concern as my work progressed. Growing intelligence seemed to be more of a human thing and not limited to one's sex. Gender, while interesting, does not tell us much about how kids get smarter.

My inquiry is this: how does a girl construct higher, order verbal linguistic intelligence in a classroom that fosters multiple intelligences theory?

Such a teacher inquiry demands unpacking.

conceptual analysis

intelligence

Several sources provide a conceptual definition of intelligence.

In *Frames of mind,* (1983) Gardner says this: " an intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings."

Ten years later, he revised this definition in *Multiple intelligences: The theory in practice.* " An intelligence entails the ability to solve problems or fashion products that are of consequence in a particular cultural setting or community."

Jerry Fluellen's " Developing mindful learners model: A 21st century ecological approach " revises Gardner's definition further. " An intelligence is the capacity to solve problems or fashion intellectual products that meet a standard of excellence."

In the context of an extended discussion about the ecological paradigm, Fritjof Capra offers a contrasting view of intelligence. Says Capra, "... the very essence of intelligence is to act appropriately when a problem is not clearly defined and solutions are not evident. Intelligent human behavior in such situations is based on common sense, accumulated from lived experience."

Akin to Capra, David Perkins defines intelligence in terms of function. He told the packed house at Harvard Project Zero's MI/ND 1997 plenary session that " intelligence has to do with how we deal with mindfulness." His recent book on outsmarting IQ echoes this definition.

Gardner, Kornhaber, and Wake point out, in their text book, *Intelligence: Multiple perspectives,* that, traditionally, intelligence " involves the ability to carry out abstract problem solving."

Then, in contrast to a text book definition, William Scranton defined intelligence within the context of economics while delivering a keynote speech at the Philadelphia Maharishi Vedic University's lecture series 20 April 1998. He not only claimed that intelligence has replaced oil and other natural resources as the basis of economy now and in the 21st century, but he said intelligence is " the ability to do more with less."

As recently as the May 1998 issue of *Scientific American,* Karen Wright's article (" How do cognitive abilities relate to general intelligence?") says " experts have disagreed about the fundamental nature of intelligence," some claiming it is an " inherent faculty prescribed by heredity, others claiming the " effects of education and upbringing," others claiming " a global quality that permeates all facets of cognition," and still others believing the
" intellect consists of discrete, specialized abilities--such as artistic talent or a flair for mathematics--that share no common principle."

Wright goes on to add " in the past few decades, genetic studies have convinced most psychologists that heredity exerts considerable influence on intelligence. In fact, research suggests that as much as half of the variation in intelligence among individuals may be attributed to genetic factors."

" And most psychologists have also come to accept a global conceptualization of intelligence. Termed general cognitive ability or ' g,' this global quality is reflected in the apparent overlap among specific cognitive skills."

For this inquiry, however, intelligence is defined in terms of Gardner's recent definition. At the MI/ND 1997 symposium during his first of three keynote addresses, Gardner said **" Intelligence is the potential to develop an ability of value in one or more settings. It is the ability to make things of value in a particular culture. It deals with solving problems and creating products. It's like a ballet between potential and environment."**

While less economical than his previous definitions, Gardner's new meaning for intelligence seems to acknowledge the interactive quality between intelligence as potential and potential realized in the culture. It connects intelligence as might be with intelligence as is. As Gardner would say, Mozart never would have become an " extraordinary mind," a master composer, in a culture that favored navigating seas.

Intelligence, on the other hand, has been traditionally defined operationally by some validated measure of IQ. But, this late in the 20th century, IQ no longer tells a person's whole story. Even if Karen Wright's claim that most psychologists today attribute 50% of the variation in intelligence to native endowment is right that leaves another 50% to grow in the environment.

The glass is half full from birth. Teachers, parents, and coaches can help children to fill the other half.

linguistic intelligence

One of Gardner's original eight (8) criteria for an intelligence is that it has identifiable core abilities. In addition to phonology, syntax, semantics and pragmatics--four core language abilities in human beings across cultures-- Gardner " singles out four aspects of linguistic knowledge that have proved of striking importance in human society."

For Gardner, the rhetorical aspect of language is the " ability to use language to convince other individuals of a course of action." Then the mnemonic potential of language is the
" capacity to use this tool to help one remember information, ranging from lists of possessions to rules of a game, from directions for finding one's way to procedures for operating a new machine."

" A third aspect of language is its role in explanation. Much of teaching and learning occurs through language--at one time, principally through oral instructions, employing verse, collections of adages, or simple explanations, and now increasingly, through the word in its written form." He says " a compelling example of this aspect can be found in the sciences."

" Despite the evident importance of logical-mathematical reasoning and symbol systems, language remains the optimal means for conveying the basic concepts in textbooks. In addition, language supplies the metaphors that are crucial for launching and for explaining a new scientific development."

Finally, there is the potential of language to " explain its own activities--the ability to use language to reflect upon language, to engage in ' metalinguistics ' analysis." (Gardner, 1983)

higher order verbal linguistic intelligence

Higher order, verbal linguistic intelligence consists of five features:
1. story telling/inventing
2. expressive writing
3. poetry appreciation/writing
4. formal speaking and debating
5. metalinguistics

David Lazear's interpretation of higher order ends becomes key in this teacher inquiry when examining what counts for higher order, verbal linguistic intelligence in the target fourth grade class.

When I asked Howard what he thought of Lazear's addition of higher order intelligence to each of the original seven during a lunch time, small group meeting at MI/ND 1997, he said many of the writers about multiple intelligences put words in his mouth. But, in this case, he had no fundamental disagreement with Lazear's interpretation specifically of higher order, verbal linguistic intelligence. (Fluellen, 1997d)

And a close reading of Gardner's original formulation of MI theory in *Frames of mind* reveals that one of the eight criteria for what counts as an intelligence is the existence of expert states. Thus, the story of nine year old Ala Smith's growth in higher order, verbal linguistic intelligence can use Toni Morrison as the model case of what is possible.

Thus, activities and assessments that offer children chances to write stories such as the Stone Soup writing project or write essays such as Harcourt Brace science logs or recite multicultural poems, or reflect on a subject with critical squares games from Harvard Project Zero's teaching for understanding research, or practice sentence combining as a way of looking at language about language can be said to aim at the notion of higher order, verbal linguistic intelligence.

multiple intelligences classroom

For the purpose of this teacher inquiry, a multiple intelligences classroom applies Gardner's MI theory as its principal tool for helping children to understand subject matter. This means that activities and assessments cross the intelligences as well as content standards. Children are assessed for ways in which they are <u>at promise</u> relative to each one's MI profile and not in comparison to a group.Within the culture of such a class, children play with solving problems and fashioning intellectual products across the eight intelligences (verbal linguistic, logical mathematical, musical, visual spatial, bodily kinesthetic, interpersonal, intrapersonal, and naturalistic).

data collection

Finally, because triangulating data increases validity of descriptive studies, I collected several levels of data about Ala Smith from September 1996 to June 1997. This data included three multiple intelligences narrative report card comments, audio tape recordings of her poetry and drama performances, journal observations of her MI profile, seven critical reflections on literature theme tests, an electronic portfolio of her stories and essays for *Memoirs and Visions*, the class literary magazine, and a hard copy portfolio of best writings

Such triangulation of data (three or more different looks at an inquiry), however, did not overcome one glaring validity problem in this study: the teacher researcher also taught the children, and, therefore, was in position to influence the outcomes. (Bruce, 1996)

However, the chief purpose of my teacher research was to reflect on practice. Thus, that validity problem seems irrelevant. It is not intended that this story be generalizable to a larger population. It is intended that the story provide useful metaphors to inform classroom practices and new questions to guide formal or informal studies about teaching for understanding in the future. It is intended that Ala's struggle to grow higher order, verbal linguistic intelligence become a way of asking questions about intellectual growth in other children.

Her story expands my ignorance (and my mindfulness) about growing intelligences in boys and girls. That is intended. That is the soul of teacher research.

***

Colors blind the eye.
Sounds deafen the ear.
Flavors numb the taste.
Thoughts weaken the mind.
Desires wither the heart.

The Master observes the world
but trusts his inner vision.
He allows things to come and go.
His heart is open as the sky.

passage 12 from the *Tao Te Ching*

Farmer Joe liked to fish in his pond. One day he noticed a lily pod on the pond. The next day there were two pods on the pond. The next day 4, then 8, then 16, then 32...by the 28th day half his pond was covered with lily pods. How long would it be before the whole pond was covered with pods?

This 29th day story could introduce the concept of exponential growth in a 4th grade math class using multiple intelligences theory as its primary tool of teaching for understanding. In such a class, children would not only listen to the story, they might do activities in any or all of the other seven intelligences. They might draw pictures to illustrate the 29th day problem. They might write a song or rap to illustrate the story. They might work in teams to write a skit and act out the story. They might work with base ten blocks individually to illustrate how the lily pods grow rapidly from doubling. They might research bacteria as a real world example of exponential growth and decay. They might find and classify examples of exponential growth in the real world. They might write their own word problems about exponential growth. They might debate about the analogy between multiplication and division and exponential growth and exponential decay. The point is that children might use verbal linguistic intelligence, musical intelligence, bodily kinesthetic intelligence, naturalistic, interpersonal intelligence, and intrapersonal intelligence to understand more deeply a concept belonging to logical mathematical intelligence.

Such use of activities based on more than one intelligence to help children understand a concept or even to assess what children understand is what characterizes the MI classroom. Though this must be said with caution because it is neither practical nor desirable to force the eight intelligences into a lesson. Use of MI activities and assessments must always be done with the children in mind first. The aim is to assess what they know, find out what they understand (knowledge they can transfer to a new situation).

II

An analysis of Ala Smith's work on a biography of Marian Anderson illustrates how intelligences come together in a symphony of teaching for understanding.

Ala began with a biography about Marian Anderson. It was one of three biographies and one theme book she was to read in the Houghton Mifflin literature program. After studying a biography of Walt Disney and viewing three of his early Mickey Mouse films, after connecting with prior knowledge about dreams people have, after writing biographical sketches of two classmates, she read the Marian Anderson biography. Then she made a timeline of the key events in Marian Anderson's life, tracing her dream of singing as a three year old to her rise as a world class opera star. She drew a portrait of Marian Anderson and viewed a documentary about her career. Finally, she organized five classmates to do a dramatic reading of Myra Cohn Livingston's " Keep on singing," an extended poem about Marian Anderson's life.

Ala used seven of the eight intelligences to understand connections among dreams and acts leading to their achievement. As she reflected on the connections between present actions (including dreams) and future realities, Ala became more mindful of Marian Anderson's life as well as her own. In addition, Ala's work shows what happens in a classroom using the MI framework.

What characterizes the MI classroom may best be summed in Ala's narrative report card comments.

Multiple intelligences
narrative report card comments
Room 201, 4th Grade

Name of child:
Ala Smith

Our great grand parents knew that a well rounded person was someone who could do many things: write poetry like Maya Angelou, sing like Toni Braxton, figure science like Guy Bluford, shoot three point baskets like Michael Jordan or dance like Judith Jaminson, draw pictures that look better than photographs the way Floyd Cooper does, get along well with all types of people, and have common sense or be self smart.

Some of us would call such a person a Renaissance man (woman). But no matter if we say a person is well rounded or renaissance person, we have known for years that such people were in our lives and that IQ tests did not tell much about them.

Now, for the first time, a formal theory has been added to the folklore--a theory that also debunks the IQ test.

Howard Gardner's multiple intelligences theory suggests that intelligence is more than a score on a test. A person can be word smart, music smart, number smart, art smart, sports smart, people smart, and self smart. Moreso, he says, each of these intelligences can be improved over a lifetime through teaching, coaching, parenting, and experiences.

For us as parents and teachers this is a powerful idea. <u>It means the strongest intelligence of our children can be made better and the weakest intelligence can be made better.</u>

201's entire instructional plan has been set up to use Gardner's seven intelligences for activities and assessments within the context of the new Philadelphia content standards. Thus, 201 is in the business of developing each child's multiple intelligences profile for the purpose of understanding the content standards more deeply.

It is a key tool in the teaching for understanding framework.

For the first report, I have made numerous observations of your child's intelligences and can now ask selected questions. Then you and I can find answers to the questions during the second and third report card periods.

Let's begin with what may be one of her stronger intelligences. Ala seems to perform best when assessments draw on her word smarts. For example, she recites difficult poems from memory and participates well in the multicultural play performance project. She has written several short stories, one of which was discussed by a group of teachers in the Philadelphia Writing Project at University of Pennsylvania. She scored proficient on her first reading theme test. She wrote a 4 quality science log and scored advanced on a Germantown Cluster assessment of writing.

Could she be high in verbal linguistic intelligence?

Let's end with what may be one of her weaker intelligences. Ala seems to be having intense conflicts with three other children in the class. Recently, she has come to near blows with two of these children. Most of the times she follows directions and has been a student I have depended upon for a range of classroom jobs. But this recent tendency to argue and threaten needs to be redirected before it takes away from her development.

Could she be less high in interpersonal intelligence?

Our challenge will be to explore these questions and find ways to help her improve both the stronger and weaker intelligences.

2nd report

25 assessments of English Language Arts during this report suggest that Ala is at promise in verbal linguistic intelligence. Also, she is a regular presenter in the Friday morning self selected presentation times and has taken to the multicultural drama project. She has over six pieces word processed for our class literary magazine. Her theme test scores continue to range from proficient to advanced, i.e. >80 or >90.

She can, for example, listen to a story and retell it, capturing key events and interpreting the moral--the advanced end of the Germantown Cluster assessment of writing.

In addition, 28 assessments of mathematics during the second report period, including several open ended problems with real life data and analogy problems from Anita Harnadek's critical thinking in Mathematics program, plus 23 assessments in Science, including her I wonder plan, indicate that Ala may also be at promise in logical mathematical intelligence.

Note. She has made significant progress in learning how to settle conflicts with her mind.

3rd report

The evidence from numerous formal and informal assessments (i.e. observations and inferences) about Ala indicates that she is at promise in verbal linguistic intelligence. She published fiction and non fiction works in *Memoirs and Visions*, the class literary magazine. She recites dramatically several different poems such as Langston Hughes' " The Negro Speaks of Rivers " and Maya Angelou's " Caged Bird." She co-directed " How the world got wisdom," the final Anansi play in the year long drama project. Her job included leading the voice and articulation exercises, feeding actors lines, and helping actors with expression. She also made a volcano and demonstrated its eruption during the final self presentation day. She explained the science problem behind her volcano experiment to the class. Finally, she was able to use knowledge as design to understand a range of ideas and the National Intellectual Standard to assess the quality of her own writing as well as that of others.

Note. Maggie Meyer published an intake form for parent conferences in the May 1997 issue of *Intelligence Connection*, a newsletter for people in the multiple intelligences network. She offers nine questions that can become the basis of your observations of Ala over the summer.

Answers to the intake questions might be used in a parent/teacher conference early in the 1997-1998 school year.

1. What would you like me to know about your child that I may not be aware of?
2. What activities or lessons is she/he engaged in outside of school?
3. What are your child's strengths and talents?
4. Does your child have any weak academic areas?
5. Describe your child's interpersonal skills?

(How well does she/he get along with other people?)

6. How can we work together on academic and personal skills?
7. How and when can we best communicate (phone calls, notes, conferences...)?
8. What kind of school support can we offer your child?
9. What new questions do you have?

Please share your answers with Ala's next teacher.

" It takes a whole village to raise a child."
African Proverb

III

Through Ala's assessments in a 4th grade class using MI, what counts for higher order, verbal linguistic intelligence also becomes clear. Her narrative report card sums the five dimensions of higher order, verbal linguistic intelligence she seemed to portray in her work. She wrote stories and essays. She appreciated poetry. She spoke formally and sometimes debated. She could use language to talk about language.

Because they produce hard copies, at least two of the above dimensions of higher order, verbal linguistic intelligence are given to closer examination, namely story writing and expressive writing.

Before examining samples of Ala's fiction and non fiction, brief descriptions of the five dimensions of higher order, verbal linguistic intelligence set the stage because they spell out what counts for higher order, verbal linguistic intelligence.

IV

When reading between the lines of Howard Gardner' original formulation of MI theory and David Lazear's explicit descriptions, there are at least five dimensions of higher order, verbal linguistic intelligence. They are as follows: **story telling/writing, expressive writing, poetry appreciation/writing, formal speaking/debating, and metalinguistics.** (Gardner, 1983; Lazear, 1991b)

Story telling/writing

In the fourth grade class for this inquiry, story telling/writing drew from writing center projects for the Houghton Mifflin literature based reading program, writing options from theme tests, and self selected topics from the children, particularly those for the class literary magazine. These count for the story telling/writing dimension of higher order, verbal linguistic intelligence. Several child authored stories appear in the class literary magazine, for example. Ala wrote stories in different genres of fiction and two of her stories appear in *Memoirs and Visions*, volume 4.

Expressive writing

In addition to numerous writing to learn activities (KWL logs, journals, knowledge as design story maps, venn diagrams, bubble dialogs, and I wonder science plans) children wrote responses to theme tests for the literature based reading program. Moreso, they wrote book reports with the knowledge as design method of critical thinking. Along with Germantown Cluster assessments of writing and the SAT 9 open ended test for reading, these count as the expressive dimension of higher order, verbal linguistic intelligence. *Memoirs and Visions* literary magazines also offers several examples of this dimension. Ala wrote extensively in this dimension of higher order, verbal linguistic intelligence.

Poetry appreciation/writing

Every child in the class memorized at least six poems for dramatic recitations. Also, a handful of children wrote poems for publication in the class literary magazine. Both audio tape recordings of dramatic recitations and hard copies of the magazine count.

While Ala Smith, the target child, wrote dozens of pieces that were stories or expressive writing, she didn't write a single poem. She did memorize all the poems in the drama project except Niki Giovani's " Poem for Carol." That poem proved too difficult for 26 of the 27 children. One child, however, who was among the least promising in verbal linguistic intelligence as indicated in written assessments and reading theme tests, could recite Giovani's poem perfectly from memory and with expression that showed she understood the fine mood changes in the poem's narrative structure.

Formal speaking/debating

Performances of poetry in assembly programs as well as in the class, gave formal speaking opportunities. Also, training in formal speaking depended on the year long drama project in which children learned voice and articulation exercises and rehearsed four plays and over a half dozen poems. They also had numerous opportunities to speak and debate before an audience in class For this inquiry, audio tape recordings of a final rehearsal counts. Note. Ala Smith was a co-director for this play. She led the voice and articulation exercises and fed actors their lines as well as coached them on expression. Once I had blocked the play so the actors knew where and when to be on stage, Ala made sure they kept to the blocking. Also, she spoke over three dozen times in the weekly self selected presentations; i.e., she presented frequently.

Metalinguistics

Metalinguistics, the act of using language to examine language, had been part of regular writing conferences in the classroom and computer lab. However, in this inquiry, no data about metalinguistics is available. A future study must find a way to capture writer/editor conferences and writer protocols. Ala had over six in depth conferences with me about pieces she was word processing for the class magazine, and she learned to use the National Intellectual Standard to assess the quality of an intellectual product such as writing. None of this was captured as data for Mindwaves. Nor were the protocols she used to solve a sentence combining puzzle based on a passage from Ralph Ellison's *Invisible man* available for study.

All these wonderful failures lead to the question how might metalinguistic samples be captured in a study of one child's construction of higher order, verbal linguistic intelligence?

However, her numerous samples of story telling and expressive writing exceed the capacity of this report. Thus, some samples of her samples might prove instructive when thinking about how she constructs higher order, verbal linguistic intelligence in two dimensions.

v

Imagine you are one of five teachers who have joined me for a small learning community meeting. We have gathered to conduct a Carini-like descriptive review of four samples of Ala Smith's work. Our purpose is to make sense of Ala's collected works gathered over time. We want to learn more about her development as a writer--i.e. her construction of two dimensions of higher order, verbal linguistic intelligence, namely story writing and expressive writing.

We have decided to use the Universal Intellectual Standard (UIS) first developed by Richard Paul, president of the National Council For Excellence in Critical Thinking Instruction (NCECT). The standard offers seven items: clarity, accuracy, relevance, precision, depth, breadth, and logic. We have devised a 4 point scale based on the seven items. Thus, 4 is advanced, 3 proficient, 2 partly proficient, 1 not proficient, 0 did not try. 4+ is reserved for a work beyond the standard of excellence. (Paul, 1993)

Using UIS may help us to be more mindful of key qualities of excellence. It may help us to welcome new information, create new categories, see more than one perspective, hold a process view of life, and reframe contexts--Ellen Langer's description of mindfulness. (Paul, 1993; Langer, 1989; 1994)

As Ala's teacher my role in the descriptive review is to provide context. One of you will chair. The other four teachers will join the chair in two rounds of description followed by a summary round. Therefore, the roles are context teacher, chair, and teachers 1, 2, 3, 4. This process governs our examination of each of Ala's four samples.

Note that while descriptive reviews in most teacher research are part of the data, what follows is invented. This descriptive review serves as a point of entry into a conversation about Ala's work. <u>Her work is the data, not the descriptive review.</u>

As it is with qualitative or quantitative studies, you will examine this data, critically, and make meaning from it for yourselves. And, of course you may judge the soundness of the discussion embedded in the fictional descriptive review.

Short story writing sample #1

A Day With The Girls
by
Ala Smith

One day I invited girls to spend the night over my house. So they came over my house. Their names were Lee Lee, Erica, Sharday, Chanel, Aiesha, and Ebony B. We went to the mall and we bought clothes, shoes, sneakers and backpacks. We ate Pizza and had soda. After eating we went to the movies to see Matilda with my big sister Tamika. We went to the RK to play games we played until we got tired. Then we went to my house. We tried on our clothes and our shoes. We had a fashion model. My cousins Michelle, Marshira, Amara, JC, Jasmine, Rochell, Risheda, Keema, and my niece Malika and my friend Malikia came too with us to the mall. We left out my house to go get our hair, nails, face, toes and hands done at the hairdresser. We went out to dinner with our new clothes, shoes and backpacks on. After that we went back to my house and went to sleep in our sleeping bags. The next day we went to eat pancakes, eggs, bacon, sausages, and drink orange juice. We went to the carnival. we went on every ride together and ate funnel cakes. Then after all that we went home. They went home and we cleaned up for the next day. So we could have another sleep over.
(writing center project: write a realistic story)

Context teacher
Ala wrote this piece as the assigned writing center project for the realistic fiction theme in her 4th grade reading program. I'd like us to take turns reading the story aloud. (The teachers read the story aloud to get a feel for the writer's text.)

Chair
I'd like each teacher to describe one thing you see in Ala's story. Remember to describe--tell what you see. Don't judge; don't say what is good or bad. Don't give your opinion. Describe. I'll start. Ala uses the phrase " one day " to begin her story.

Teacher 1
She used the word "after " in three phrases to mark sequence of events.
Teacher 2
She writes several sentences with a subject verb object pattern as in the sentence
" We ate pizza and had soda."
Teacher 3
While " went " stands out as her most frequently used verb, she does add a few power verbs such as invited, played, cleaned up.
Teacher 4
She also uses commas to mark a series, and she uses items in a series five times.

Context Teacher
Ala had read two realistic stories before taking on the writing center project. Also, she formed a girls club with two of her classmates.

Chair
Now in this second round, continue to describe. There are 17 girls in Ala's story.
Teacher 1
The girls do things together. There is no indication of the details behind the activities. They do stuff but the details are missing.
Teacher 2
So are the boys. There are no boys in the story. There are no adults.
Teacher 3
There are no problems for the characters to solve.
Teacher 4
The story does tell about things females like to do. But things like getting hair, nails, face, toes and hands done may not be what nine year olds do. Also, except for eating, most of the activities are outside the house, at a mall or at a carnival.

Context teacher
Her girl's club is based on characters from the movie " Clueless " and a series of books Ala has been reading about white, teenage, valley girls.

Chair
Now in this last round try use the items from the UIS as the basis for further descriptions or judgments about Ala's realistic story. Think of clarity, accuracy, precision, relevance, depth, breadth, and logic. You might find the phrase " I appreciate " as a useful way of framing your statement. For example, I appreciate Ala's command of sentence structure. Her sentences are clear and reasonably precise. She may want to consider having fewer characters, creating problems for them to solve, and describing both main characters and key events. That might give her story more depth and accuracy.

Teacher 1
I appreciate her logic. She has a sense of order, a clear beginning, middle and end.
Teacher 2
The story reminds me of the breakfast to bed stories my second graders write. That adds some realism but leaves out action. Her story would be more realistic if we knew more about the relationships among the characters. It has breadth, but not depth.
Teacher 3
I appreciate her attempts at sentence variety and use of some strong verbs.
Teacher 4
I wonder if she would revise this if she heard this feedback.

Context teacher
Ala's story is included in the class literary magazine. Even though it has been published, she could revise it for a wider readership such as subscribers to *Stone Soup magazine for young writers and artists.*

Short story writing sample #2

The Magical Game
by Ala Smith

One day I put a game called Jumanji under a tree because the day I played it with Lee Lee and Omar and Michelle, there were animals all over. Lee Lee got scared but we finished the game. After that I played Omar. He got scared too but we finished the game.

I won when I played Omar. I lost when I played Lee Lee. Finally, I played Michelle she got more scared than anyone. I beat her and the game was finished. I didn't play ever again. That's why I put it under the tree.
(writing center project: write a fantasy story)

Context teacher
The next work we'll look at is a story written when Ala's reading group was studying fantasy stories. Her first draft of the piece came before she wrote the realistic story we just examined. But what we will read is a revision that came after she studied realistic fiction.

Chair
I'd like each teacher to describe one thing you see in Ala's story. Remember to describe--tell what you see. Don't judge; don't say what is good or bad. Don't give your opinion. Describe. (Teachers take turns reading aloud. Then they describe what they see.

Teacher 1
There are three characters in the story.
Teacher 2
She uses several complex and compound sentences.
Teacher 3
The story is in first person singular.
Teacher 4
The story is about a game.

Chair
Now in this round continue to describe.

Teacher 1
The story suggests trouble for the characters to face, i.e. a problem to solve.
Teacher 2
The sentences vary in length and structure.
Teacher 3
She doesn't say how any of the characters won the game. Nor does she say what happened when the animals came out.
Teacher 4
There is no description of the characters or setting, but key events with a beginning , middle and ending are in place.

Chair
Now in this last round try use the items from the UIS as the basis for further descriptions or judgments about Ala's realistic story. Think of clarity, accuracy, precision, relevance, depth, breadth, and logic. You might find the phrase " I appreciate " as a useful way of framing your statement. For example, I appreciate Ala's economy of characters and that she plants the seeds of trouble for each character. She seems to be grasping the demands of narrative--to explain the unusual or as Jerome Bruner might say the noncanonical. Her language and organization seem to be clear.

Teacher I
While this story shows a greater command of narrative form, it lacks a certain accuracy to the fantasy genre. There is no logic for making the animals come out of the game. For example, in Allsberg's book, whenever Peter or Judy landed on the square marked " Lions, " lions came out. What makes the characters scared would be the type of animals that come out and how the animals threaten the characters.

Teacher 2
On the plus side her syntactic complexity has increased. What I recall from my days of working with transformational grammar and sentence combining research is that skilled adult writers use a variety of sentence lengths and styles. That makes for complexity. She is beginning to to that.

Teacher 3
While the story lacks depth--we don't know how any of the characters won nor what made them scared--it does qualify as a narrative and, therefore, has breadth, connecting with the broader genre. Oh, and this story has a boy in it.

Teacher 4
She is a nine year old writer learning how to narrate well.

Context teacher
This story is also included in the class literary magazine. It does seem to indicate growth as a narrative writer in contrast to her other story. But I should remind us that a writer's growth is nonlinear. As she experiments with subsequent genres in both self selected and teacher selected writing assignments, she may stumble. I appreciate your commentary because you raise more points than I had considered when working with her. For me her story didn't fall far from the tree. It's not all that different from Allsberg's Jumanji. The assignment instructed her to write several possible topics, choose one that might engage readers, develop a sentence outline for which a template had already been published in her reading book journal, and draft it. She then word processed her draft in the computer lab and we had a writing conference about it. She also shared the story with two classmates. Yet the story could have been a retelling of Jumanji with a change in narrator's voice from third to first person. But as one of you said, she is a nine year old writer.

Context teacher
Our next two works to examine are both expressive writing. Ala wrote both samples months after the fiction pieces we described. However, these two pieces of non fiction have a narrative structure. Both the essay about a science story in the Houghton Mifflin fourth grade reading program and the autobiographical sketch offer opportunities to observe her development of narrative at later points in time, and unlike the two fiction stories, these stories were not edited for the magazine. In this first piece, the autobiographical sketch, her topic was self selected. Bruner teaches us that so much of a child's early attempts at meaning making involve the creation of narratives. These narratives are created with the tools a culture provides and are motivated by a deep human need to make sense of the canonical and, in particular, the noncanonical. They help a child to understand the usual, but especially the unusual. This tendency to invent narratives is lifelong and fully reflected in the culture.

Chair
Let's take turns reading the piece aloud. Then we'll have two rounds of description. (Teachers read the sketch.)

Expressive writing sample #1

Autobiographical sketch
by Ala Smith

One day I was going to watch TV. Then I saw on TV the very, very person I wanted to sing like, act like, be like. Can you guess who that is? Brandy. But then I saw a TV show that I liked It was Clueless. I wanted to be like them. Share and Dion. I was them. But then i relised I wanted to be myself. But I still like them all. Then we made a popular club from looking at it friday. Today is the day it's coming on. We wear clothes sometimes just like Share and Dion. Sometimes I have my hair like Share and Dion's Sometimes I have my hair like Brandy's Sometimes I have my hair in my own style. Me, Erica, and Ebony are the captains for the popular club. The members are Alyia, Ebonie W, Faith, Harrina, Kendra and Clarissa. The guards are Terrance, Anthony, Leanard and Richard. Now more about Brandy I watch her show every tuesday. At recess we have popular club. We make test for the popular club. We have certain day we have things to do with Share and Dion. Now they have different things coming out things to do with Clueless, Brandy show called Moesha we talk about her every now and then. But mosty we talk about Clueless alot. I'm not saying one show is better than the other. The words to clueless are as if, Shir, Shank cool what ever, that's some of the words. Brandy say words like what's up yall, I'm the bomb and more.

Context teacher
The two fiction pieces we read earlier were edited with Ala in preparation for publication in the class literary magazine. They came from what Robbie Lipman called an " electronic portfolio," best works stored in a computer. This piece, however, as well as the next one, were from her hard copy portfolio and did not benefit from co-editing. We get to see what Ala does on her own to construct a narrative.

Chair
Yes, when we read the piece, I noticed several errors not present in her fiction works. For example, a lack of period between two sentences fuses meaning where it should not. That forced me back to my transformational grammar and sentence combining days of identifying unpunctuated sentences by the rule " independent clause plus any clauses embedded or attached to it."

Teacher 1
It's punctuated like one paragraph, but several topics seem to be present.
Teacher 2
She writes in the present tense about past events.
Teacher 3
I wonder what this says about her "self. " Who are these characters? Are Cher, Dion, and Brandy white, black, brown or yellow? How is it that Ala came to identify with these characters?

Chair
Those are good question, but remember to describe first.

Teacher 4
She names about a dozen others in this story.

Chair
We'll have another round, but first this might be a place for more context.

Context teacher
Ala is a child of African descent raised in the United States of America. Except for Cher who is white, Dion who is black, and Brandy who is also black, the other names are boys and girls in her class. Erica and Ebony co-founded the Popular Girls' Club early in the school year and developed it into a well organized classroom movement. The club eventually became a larger in-group with Ala, Erica and Ebony as its leaders. All the children in Ala's class are African American.

Teacher 1
She says she wants to be like Cher and Dion. Then she says she want to be like herself.
Teacher 2
She seems to give more in the way of what her relationships are with others in this piece than she did in the earlier fiction piece we described.
Teacher 3
She seems to like the Valley Girl words.

Teacher 4
Ala's story has an opening, a sense of middle, but I'm not sure it has an ending.

Chair
I noticed more of our remarks have dealt with meaning. The obvious errors in syntax, grammar, mechanics, organization, and style do seem less important than the rich meanings offered.

Context teacher
It might be useful here to know that Bruner talks a lot about self in the last chapter of *Acts of meaning*. In that chapter, he explores the value of autobiography in understanding two universals about self. Allow me to quote Bruner's view of these universals about self. " The first is human *reflexivity,* our capacity to turn around on the past and alter the present in its light, or to alter the past in the light of the present. Neither the past nor the present stays fixed in the face of this reflexivity. The ' immense repository ' of our past encounters may be rendered salient in different ways as we review them reflexively, or may be changed by reconceptualization. The second universal is our ' dazzling ' intellectual capacity to *envision alternatives*--to conceive of other ways of being, of acting, of striving. So while it may be the case that in some sense we are ' creatures of history,' in another sense we are autonomous agents as well. The Self, then, like any other aspect of human nature, stands both as a guardian of permanence and as a barometer responding to the local cultural weather." How much of what we see in Ala's autobiography here represents interactions between her historical self and her possible selves? How has her self described in this text an example of what Bruner calls " distributed self," a self affected by both the fictional and real people in her autobiography?

Chair
Keeping the intellectual standard in mind, let's open this round to include questions as well as standard based judgments.

Teacher I
Well as a draft it still has to be judged along the lines of the intellectual standard. It is clear in terms of meaning, but unclear because of mechanical errors. It seems relevant to the assignment and may even be accurate. The incomplete ending leaves it less logical. Her topic goes beyond the " bed to breakfast " we saw in the fiction sample, yet it still seems to lack depth. I would rate it a 3 with an eye on revisions for readers.
Teacher 2
Rating this draft feels uncomfortable. Better would be to use the UIS to describe what stands out. She tells a story of how a popular girls club began. But where is the autobiography? Where is her story of her self? Who is she? What does she dream of becoming?
Teacher 3
You have a point. It may help her to know the mechanical errors make the work unclear for readers. Overwhelming her with comments from seven items might have less instructional value.
Teacher 4
Sounds like we are saying less is more.

Context teacher
Like the other non fiction story, this next piece comes from Ala's hard copy portfolio. In a way, the hard copy portfolios children kept were really what Howard Gardner calls " processfolios " because that were unedited and contained primarily self selected works. Children such as Ala overwrote my time allotted for conferences. In fact, unless a piece made it to the electronic portfolio stage, it remained a piece the child author liked well enough to keep in the " blue ribbon " folder reserved for best works. This piece gives us a contrast to the other three. It was to be a critical thinking report using four questions from David Perkins ' knowledge as design. The report could have answered four questions about purpose, structure, model case and argument:

- ·Why did Millicent Selsam write " Strange creatures that really lived?"
- ·What were the main ideas of her article?
- ·How does her article compare with the other two articles we read?
- ·Was the article worthwhile to read? Why or why not?

The comment on Ala's piece was this " I like your creativity. How might you use a creative approach and still answer the four knowledge as design questions?" Ala wrote her essay on 12-6-96. Over the next six months she mastered Perkin's critical thinking system and continued to be creative. However, she never came back to this essay. Nonetheless, it gives us another look at expressive writing as a dimension of higher order, verbal linguistic intelligence.

Chair
Let's take turns reading Ala's essay aloud. Then we'll have three rounds of description and commentary.

Expressive writing sample #2

Millicent Selsam's
" Strange creatures that really lived "
a self selected report
by Ala Smith

This story is about strange creatures that really lived. They look wierd. I liked this story because it has an animal story body stuck to make another animal. The animals in this book would make you think something is wrong with your eyes but it's not. like a horse head with birds legs and a chicken body. Well I'm glad I'm not an animal.

Chair
Would someone like to begin the description round?

Teacher I
The essay opens with a one sentence summary of the article.
Teacher 2
Her piece combines evaluative and descriptive statements.

Teacher 3
Even though her sentences follow a SVO pattern, they seem varied because of their different lengths and topics.
Teacher 4
Just eyeballing her sentence lengths for an indicator of syntactic maturity (average length of sentences), she may be over 10 words. A skilled adult, I believe, averages about 17 words per sentence.

Chair
While syntactic maturity may be one indicator of skilled writing, I am more impressed with less quantitative measures. For example, in this one paragraph we get a sense of what Selsam's article was about. Such a summary reminds me of Strunk and White's rule " Omit needless words."

Teacher I
She summarizes the article in her first sentence. Then the rest of her essay gives her critical comments and the flavor of the article through an example of a strange creature. What readers seem to miss in the essay is a reason Ala might not like the article or how it might have been better. Nor is there a comparison with the other articles she read.
Teacher 2
In this piece, Ala gives us a few things not present in the other three: humor (in the last two sentences), experimenting with sentence length, a syntactic unit about 30 words long, writing about text, offering of her feelings.
Teacher 3
She writes a phrase that is set off with a period, but does not capitalize the first letter of the first word in the sentence. That phrase might have been embedded or attached to the previous clause.
Teacher 4
Overall the piece presents a lead, middle and end.

Chair
Now in this last round, you may judge along the lines of the standard or raise questions.

Teacher I
I would rate the piece a 3 because it is clear, precise, has breadth, and logic. It suffers some accuracy problems in the area of mechanics. It didn't fit the assignment to address the four critical thinking questions, though she did demonstrate critical thinking. Depth might have come from comparisons with with other texts or media or pros and cons of the article.
Teacher 2
I mostly agree with the 3 rating, but the sentence fragment made that part of the piece unclear.
Teacher 3
Given that the piece is free of the major errors I see in a lot of 4th grade writing and given the difficulty of the topic and her demonstration of understanding, I rate the piece a 4. To me the small errors she makes are easily corrected. And this is a first draft.

Teacher 4
Maybe, it is a piece that rates a 3 now but would be 4 or even 4+ when it is finished.

Context teacher
I rated the piece a 3 for reasons you gave plus the fact that it didn't quite reach relevancy. If she had used the four knowledge as design question, she would have had at least four paragraphs that examined the article from four perspectives.

Chair
I wonder what these four pieces say about higher order, verbal linguistic intelligence, and I might throw in what might be said about gender?

Context teacher
I'm glad you raised that two edged question. Higher order, verbal linguistic intelligence holds tension between the absolute and relevant. The samples Ala gives of these two dimensions don't reach the level of quality of say Toni Morrison, Virginia Woolf, James Clavell, or Cornell West. Yet compared to other 4th graders, Ala seems competent. In both cases, a standard is implied. The four model case writers above made a living by having a command of all five higher order dimensions of verbal linguistic intelligence. They are or have been recognized by the culture as gifted wordsmiths. Ala, however, is in progress. She may even be as good a writer as they were at nine years old, but her future is unknown.

As for gender, I don't know enough to have an opinion backed by evidence. I will say that Ala's performance across subjects and across intelligences was about as high as her verbal linguistic intelligence. She was tops in Science and Mathematics, Music and Art, Drama and Computers. Her weaker intelligences were bodily kinesthetic and interpersonal. But what does this say about gender? I'm not even sure gender is a useful way of seeing human potential. It seems valuable to describe children in terms of their capacities for solving problems and fashioning intellectual products. It seems valuable to see ways in which each child is at promise. But of what instructional value is it to see that Ala did as well in Science as the best of the boys? I need to know more about how gender might help me to design a teaching /learning culture that develops intelligence, particularly the experiential and reflective dimensions of intelligence that Perkins describes in his new theory of learnable intelligence. When learnable intelligence combines with Gardner's multiple intelligences theory a richer view of human potential across genre, race, age and class might emerge.

Chair

I want to thank our teachers and context teacher for their insightful commentary in this descriptive review of one child's story writing and expressive writing as two dimensions of higher order, verbal linguistic intelligence. I am sure the comments raise more questions than they gave answers. For example, a detailed description of how Ala constructs even these two dimensions of higher order, verbal linguistic intelligence seems to be missing. Nor do we know how she compares as a nine year old writer to an expert state such as Toni Morrison. There must be a continuum in the development of each of the five dimensions. Are there measurable stages in the development of higher order, verbal linguistic intelligence? What gender issues emerge from her writing? Does her writing also present issues of race, class, and power? It is possible that this is a " never ending story!"

VI

Mind
by Richard Wilber

Mind in its purest play is like some bat
That beats about in caverns all alone,
Contriving by a kind of senseless wit
Not to conclude against a wall of stone.

It has no need to falter or explore;
Darkly it knows what obstacles are there,
And so may weave and flitter, dip and soar
In perfect courses through the blackest air.

And has this simile a like perfection?
The mind is like a bat. Precisely. Save
That in the very happiest intellection
A graceful error may correct the cave.

The above is Richard Wilber's " Mind, " a poem David Perkins and Lois Hetland used to introduce their session on the teaching for understanding framework at Harvard Project Zero's MI/ND 1996 symposium. Wilber's poem also ends my story of Jerome Bruner, Howard Gardner, and Ala Smith. My " graceful errors " about the other mind problem, use of MI theory as a main tool of the teaching for understanding framework, and one child's construction of higher order, verbal linguistic intelligence in a multiple intelligences classroom have helped, and will continue to help, me " correct the cave."

My new map of the cave around how a child constructs higher order verbal linguistic intelligence includes making sure the opportunities to use each of he five dimensions are a regular part of the instructional program, assessing performances of each dimension with a clear rubric, documenting growth over time with processfolios and portfolios--particularly electronic portfolios--publishing a class literary magazine, and creating an environment in which all the intelligences are honored. These are essential features for constructing higher order, verbal linguistic intelligence. What remains is an explanation of why these features must be in place.

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Working Bibliography

The following working bibliography represents sources for ideas in this teacher research report as well as items for ongoing look at factors that grow intelligence. Culled from computer data bases such as ERIC, Psy Abstracts, and Dissertation Abstracts, the citations include selected works about Harvard Project Zero's teaching for understanding framework, Howard Gardner's multiple intelligences and David Perkins's science of learnable intelligences.

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About the author

**" When one begins a conversation,
one can not see the end."**

African Proverb

Jerry Fluellen was born in Atlanta, Georgia and educated at Cheyney State University, Temple University, University of Pennsylvania and Harvard University.

He is a rising Educational Psychologist--one pursuing the Ph. D. degree at Temple University. He also serves as a Grade Teacher in the Joseph Pennell Elementary School and a Teacher Consultant in the Philadelphia Writing Project at University of Pennsylvania.

He has published over a half dozen papers in the ERIC data base including these:

- Developing Mindful Learners Model: A 21st century ecological approach
- Developing 21st century strong sense critical thinkers
- Footsteps: (A story of one child's construction of higher order, logical mathematical intelligence in a multiple intelligences classroom)

Jerry co-facilitated the 1998 " Students at the Center " summer institute for teachers at University of Pennsylvania and co-presented " MI/ND (multiple intelligences new directions) " at the 1998 Best Practices Fair for educators in the Germantown Cluster of the Philadelphia Public School System.

Then he served as a panelist for Philadelphia Writing Project's " Guys, Girls, and Gender Construction " session at the Educational Ethnography Conference at University of Pennsylvania. He has presented interactive talks about multiple intelligences for graduate students at Temple University, Beaver College, and University of Pennsylvania as well as for audiences at three international conferences.

Also he continued his study of intelligence in Harvard University Project Zero's 1997 and 1998 summer institutes. While at Harvard's 1998 institute he co-presented " Extending the PZ Classroom: Creating a Community for Thinking and Learning," a new teacher research grant proposal for the Spencer Foundation.

Finally, a TM-Sidhi meditator, Jerry is concerned that all children have what Vito Perrone calls an education of power and consequence. To that end, he is creating the " Growing Intelligences Model (GIM)." This model connects research on relationships among regular practice of meditation and intelligence with insights from Howard Gardner, David Perkins and other researchers at Harvard Project Zero and the 21st Century Initiative.

In a forthcoming study to develop part of the model (specifically a dissertation), he will explore the following inquiry: <u>How do children grow intelligence in a classroom that fosters the Harvard Project Zero teaching for understanding framework?</u>

Stay tuned.